PROGRESS

OF

MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF
WILLIAM OSLER, M.D.,
PROFESSOR OF MEDICINE IN THE JOHNS HOPKINS UNIVERSITY, BALTIMORE, MARYLAND,
AND
W. S. THAYER, M.D.,
ASSOCIATE PROFESSOR OF MEDICINE IN JOHNS HOPKINS UNIVERSITY, BALTIMORE, MARYLAND.

The Cause and Specific Treatment of Hay Fever.—Dunbar (*Deutsche med. Wochenschrift*, 1903, xxix. p. 149) contributes a most important article upon the results of his studies, which have been carried out during the last seven years, upon the nature and treatment of hay fever. These are to be set forth more completely in a work which will shortly be published.

Recognizing the fact that hay fever depended largely upon individual predisposition, a great proportion of the people being entirely insusceptible to it, great variances of opinion have existed in the medical profession with regard to the immediate causative agent. Summer heat, dust, or other purely mechanical substances, emanations from grass or hay, and finally micro-organisms have been incriminated. The researches of Elliotson and Blackley suggested that hay fever was caused by the pollen of plants. Thirty years ago this was the more generally recognized idea. Recently, however, the theory that it was due to an infectious agent has been more popular. The author recognized the fact that the question could never be settled until the causal agent could be obtained in pure form, until the disease could be produced at all times of the year in susceptible individuals, and, further, until it was proven that this causal agent was efficacious only in individuals who were known to be susceptible to hay fever. In this task he has apparently met with complete success. Dunbar has shown that the pollen granules of rye, oats, wheat, rice, corn, and all other forms of grass which he has examined contain substances which bring on all the appearances of hay fever in individuals susceptible to the disease, but are entirely without effect upon other individuals. The pollen granules of all other forms of plants—for instance, those of linden, rose, vermuth, and many other plants which have been supposed to be dangerous, have proved to be entirely innocuous.

It was further shown that these pollen granules produced results similar to those generally recognized in the mucous membrane supplied by the

N. trigeminus, when applied to any other part of the body—for instance, to the mucous membrane of the rectum. The same effects were observed at all times of the year. The active substance in the pollen granules was not to be extracted by alcohol or ether, but was more or less soluble in water or physiological salt solution, very soluble in tears, saliva, nasal secretion, and blood serum.

The author believes that the active substance is represented by the starch rodlets, which form the main part of the contents of the pollen granules of grass. These starch rodlets do not apparently consist of pure starch; the active substance would appear to be an albuminoid body. Numerous experiments made by the author and by Thost and Schultz in Heligoland have proven that the application of pollen in pure form or in the shape of solutions to mucous membranes produces without exception the characteristic symptoms of hay fever at all times of the year in individuals susceptible to the disease, while such application is absolutely without result in non-susceptible persons. These symptoms are to be produced not only by local external application of pollen toxin, but hypodermic injection of very small quantities produces the most severe results—conjunctivitis, coryza, cough, asthmatic attacks, etc. The author reports a most remarkable case of this sort.

Following this discovery, the author began experiments directed toward obtaining a curative serum. Animals were injected with the pollen toxin. For months the serum not only did not neutralize pollen toxin, but rather increased its activity. Gradually, however, an antitoxin developed which completely neutralized the pollen toxin *in vitro*. More than that, it was possible on letting several drops of antitoxin fall into the eye or nose shortly after toxin had been previously applied, to entirely counteract its effect. This, however, has been as yet possible only in the very early stages of the manifestations. It is, however, much to be hoped that an antitoxin sufficiently strong to prove of actual therapeutic value may soon be obtained.

The important question naturally arises as to whether the toxin in all these different varieties of pollen is the same substance. Dunbar has already examined eighteen different varieties of pollen. He has already shown that the toxin of rye pollen granules is fully neutralized *in vitro* by the corn pollen antitoxin, while the symptoms produced by rye pollen toxin in a hay fever patient could be immediately arrested by corn pollen antitoxin. These observations would lead one to believe that pollen toxin of the various gramineæ is the same substance.

Juvenile Tabes and Hereditary Syphilis.—Linser (*Münch. med. Wochenschrift*, 1903, l. p. 637) reports the case of a woman, a virgin, who had suffered during childhood from frequent cutaneous eruptions, the nature of which was uncertain, as well as with glandular swellings, and presented, at the age of thirty-four, a distinct picture of locomotor ataxia. The first symptoms, of headache and dizziness, began at her fifteenth year; lancinating pains appeared at twenty, while at twenty-five the loss of light and patellar reflexes as well as paræsthesiæ were evident.

Until ten or fifteen years ago the existence of these juvenile cases of tabes was doubted by many. Twenty-one such cases have, however, been reported,